EXPLORING THE NORTHERN DIMENSION

Northern Dimension

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Decarbonizing road passenger transport in the ND area

This policy brief elaborates recommendations for road passenger transport decarbonization in the Northern Dimension (ND) area. On the one hand, road transport emits 25% of total greenhouse gas in ND countries and produces dangerous local pollutions, and the share of passenger transport of these emissions is more than 75% [1] Nitrogen oxide, sulphur oxide and particular matter emissions are the reason for numerous lung and breathe diseases of city inhabitants. On the other hand, road transport gives people invaluable freedom of movement, as people commute every day to work, study and leisure. Average motorization rate is over 50% in ND countries [2, 3]. This raises the key question: How can people keep their freedom of movement but pollute less? There are several ways to decarbonize road passenger transport, such as optimizing driving needs according to ecological criteria, remote work or study, using 2 and 3 wheelers empowered by human or electricity, sharing mobility services with others, and driving less polluting cars such as hybrid, electric or gas vehicles. All these options influence traditional behavior, which needs to be considered in developing policies for road passenger transport decarbonization.

- **Recommendation 1**. Inform people about climate and ecological issues and thus influence positively consumer behavior, and popularize ecomobility.
- **Recommendation 2**. Develop infrastructure and services for carbon-free mobility and sharing. Support eco infrastructure.
- **Recommendation 3**. Balance between economic, ecological, and social needs. Limit the use of polluting transport wherever and whenever it is possible. Ensure access to mobility for people living in remote areas and for low-income people.
- **Recommendation 4**. Make a realistic long-term vision, which includes support for R&D, development of carbon footprint trackers that find the optimal ecological and economic model of sustainable transport system, as well as learning from international experience.
- **Recommendation 5**. Support more intensive technology transfer, joint research, pilot projects, and NGO initiatives among ND countries.

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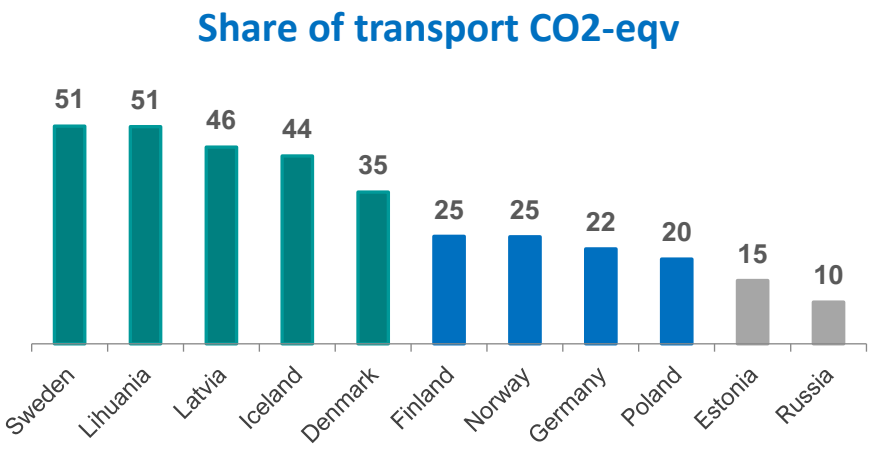
Passenger transport sectors in the ND area

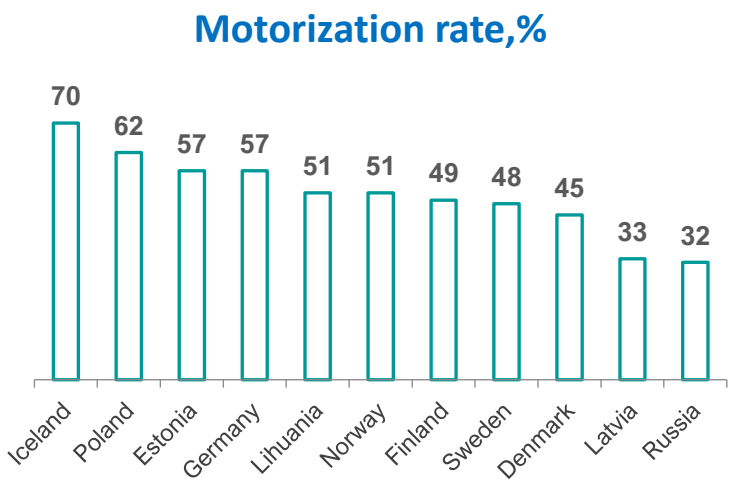
The **market patterns of passenger transport sector within the ND area** differ, including the role of transport in all emissions, motorization rate, and the transition towards carbon-free transport sector. Climate awareness and attitudes to transition of consumers also differ. An opinion survey [4] reflects **polarized views of European citizens to decarbonization**, ranging from full support and readiness to change a habitual way of life and incur additional costs, to a very conservative vision with concern for climate change, but without any willingness to sacrifice one's usual way of life.

Countries in the ND area have different climate targets, and the fulfilling of climate commitments requires the reduction of the transport sector's emissions in most cases. The **importance of the transport sector as a source of CO2 emissions**, however, varies within the ND area (Figure 1). Consequently, the urgency of the need to reduce the transport sector's emissions to fulfill national climate commitments also varies.



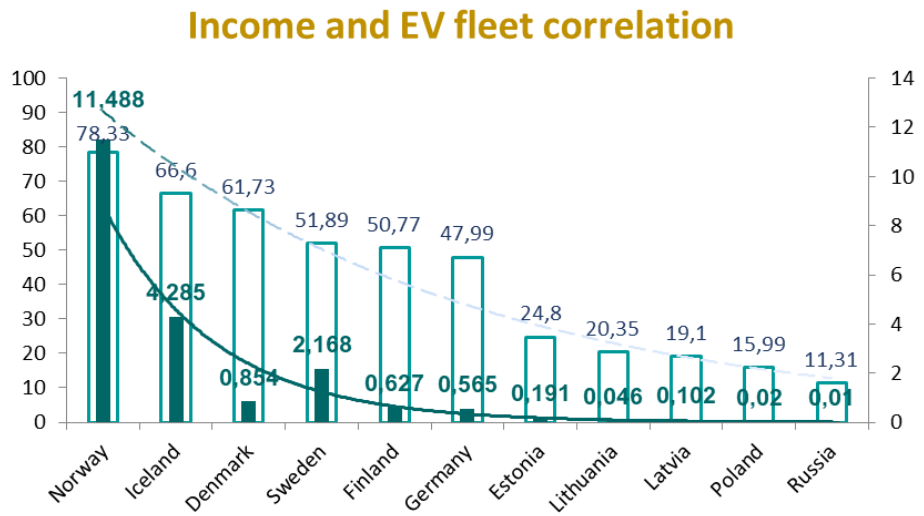
Source: IEA statistics database [1]

Furthermore, ND countries have **different motorization rates** (Figure 2). There is no room for the growth of the vehicles fleet and resulting increase of emissions in those countries where motorization rate is more than 50%.



Source: Eurostat statistics database [2]; Autostat research reports [3]

Another difference among the ND countries is in their policies as to the **transition towards carbon-free transport sector** which is reflected in the number of electric vehicles (Figure 3). Norway, Iceland, Sweden demonstrate intensive energy transition to a target model of a carbon-free transport sector which is supported by governmental incentives, tax reduction and parking promotion. Germany, Denmark and Russia have taken a moderate stance by focusing on the low-carbon model, whereas Latvia, Lithuania, Estonia and Poland aim to improve the efficiency of the transport sector while saving the current model.



GDP per capita (1000 USD/person) on the left-side axis, % of electric and hybrid vehicles in the total number of motor vehicles on the right axis
Source: Eurostat statistics database [2]; Autostat research reports [3]

Low carbon sustainable mobility model is on the edge for policy makers

Currently there are no market forces that would intensively decarbonize the transport sector. Therefore, making the fuel basket a low-carbon one requires political will, economic incentives, large-scale investment, and institutional changes.

Low-carbon transportation system requires new standards for mobility that imply changes in a number of areas:

- **Taxation:** Introducing the principle "greenhouse gas polluter pays"
- **Infrastructure:** Deployment of **multi-fuel infrastructure**
- **Legislation:** Gradual reduction of petroleum-based transport
- **Way of living**; Promotion of remote work and study, and sharing economy
- **Technological innovations**: New models of prosumerism, miniaturization of transport means, two-three-wheel vehicles harnessing

On the other hand, due to the higher price of carbon-free vehicles such as electronic and fuel cell electronic vehicles, there are some risks:

- Polluting vehicles can move to low-income countries
- Carbon restrictions and taxes may limit low-income citizens' access to mobility
- New technologies need time to prove their safety and applicability.
- People living in remote areas may lose equal access to mobility

Taking into account the differences in the energy mix between countries, there is no single optimal structure of transport sector that would be applicable for all countries. Therefore, national passenger transport's decarbonization strategies should be based on optimization models that take into account country-specific economic, ecological, social and technological factors.

Moreover, transport sector decarbonization in countries of the ND area would benefit from combined efforts of all countries to create complementary low-carbon infrastructure in the region. This is needed to support the international mobility of travelers on various types of vehicles.

The Northern Dimension Partnership for Transport and Logistics could provide one platform to discuss joint initiatives in technology transfer, research, pilot projects, and NGO cooperation

References and further information

[1] IEA statistics database, available at https://www.iea.org/data-and-statistics?country=WORLD&fuel=Energy%20consumption&indicator=TFCShareBySector

[2] Eurostat dataset on passenger transport, available at https://ec.europa.eu/eurostat/databrowser/view/t2020_rk310/default/table?lang=en

[3] Autostat research reports on the Russian transport sector, available at https://www.autostat.ru/research/ (in Russian)

[4] Special Eurobarometer 490 Report Climate Change Fieldwork April 2019, Publication September 2019. Available at https://ec.europa.eu/clima/sites/default/files/support/docs/report_2019_en.pdf

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